Information Strategy Stakeholder Meeting

March 8-9, 2001

Meeting Summary

Introduction

The U.S. Environmental Protection Agency (EPA) Office of Ground Water and Drinking Water (OGWDW) sponsored a meeting on March 8-9, 2001 with the objective of obtaining input from interested stakeholders regarding issues, options, and directions affecting the future of national drinking water and source water information systems and related activities supporting the protection of public health.[1] The meeting agenda can be found as Attachment A. Participants at the meeting included representatives of public water utilities, state drinking water programs, public health and environmental groups, municipal and provincial governments, consultants, and water distribution systems, as well as U.S. EPA and other federal agencies. A list of participants is included as Attachment B. The meeting format consisted of a series of presentations by EPA staff focusing on the current thinking and approach of EPA in developing a new Information Strategic Plan. Discussion followed each presentation during which stakeholders raised questions and concerns and provided comments. Presentation materials used by the speakers are included as Attachment F. Transcribed facilitator's flip chart notes can be found at Attachment G.

Prior to the meeting, expected participants were provided with the EPA Draft Background Document, *Options for the Office of Ground Water and Drinking Water Information Strategy* (Attachment C), and discussion papers of the ASDWA/EPA Data Management Steering Committee (Attachment D) were provided to participants prior to the meeting. In addition, an EPA/Environmental Council of the States (ECOS) fact sheet, *A Blueprint for the National Environmental Information Network* (Attachment E) was distributed at the meeting.

Background

Acknowledging that information is critical to the management of major national programs and shapes responses to rapidly changing events in the public health arena, and in order to maintain credibility in a data-driven environment, OGWDW has initiated efforts to bring its information management into strategic alignment with the needs of both its internal and external stakeholders. Since development of the existing information strategy in 1992, information technology has improved, and the process for developing drinking water standards has changed significantly. In addition, the private sector provides examples of reduced costs and improved decision support systems using the current technology. EPA now seeks to develop and implement a new strategy that responds to evolving technology and

[1] The meeting was held at the offices of RESOLVE, Inc., and facilitated by Lee Langstaff, a Senior Mediator with RESOLVE, with assistance from Jeff Citrin, Senior Associate.

regulatory needs, maximizes efficiency and minimizes cost of data transactions, meets national water program needs, and links efficiently to relevant data sources.

This OGWDW Information Strategy is a first step in revising its Information Strategic Plan (ISP) to focus on essential data reporting and analyses supporting decisions of the national ground water and drinking water programs to protect public health. The objective of the OGWDW Information Strategy is to identify a range of actions that can be taken in the near term to modernize its information systems. The intermediate and longer-term objective of the ISP is to define achievable direction that recognizes evolving information needs and technology, and effective and efficient information management to support public health protection.

SUMMARY

A. EPA Goals

In describing the overall context in which this effort is taking place, EPA staff explained that the National Water Program is tasked with the protection of public health and the nation's water resources. To meet the requirements of the Program, high quality data must be collected and managed to provide useful information to decision-makers, the public, and other stakeholders. Currently, some data needed by the Program is not readily available, making certain program Government Performance and Results Act (GPRA) goals – which allow EPA to show measurable improvements in environmental quality and public health, and consequently contribute to better decision-making – difficult to measure.

EPA recognizes that its approach to information collection and management is in need of modernization. Some of the problems with the infrastructure systems that support the current Information Strategic Plan (ISP) include:

- the system is old;
- it is expensive to operate, modify, and maintain;
- it is focused on Public Water Supply Supervision (PWSS) violations and so does not meet the full range of needs;
- it is difficult to link to other significant data sources within the Office of Water and outside EPA; and
- it is not fully consistent with Office of Environmental Information (OEI) standards.

The need for OGWDW to become more responsive to internal and external data and analytical needs as well as to improve cost control points to the necessity for a *paradigm shift* in the way information is managed and related decisions are made.

EPA acknowledged that, while its information systems must serve multiple functions and should be useful to a variety of users both within and external to the Agency, the primary focus of the data contained in these systems must be to support EPA's essential business needs. EPA has begun efforts to define these core business needs, but also welcomed the opportunity to hear from stakeholders on

this task. An additional goal of EPA in this process is to employ newer technology to improve system efficiency and make future modernization easier.

Under a new ISP, over the next five years OGWDW's information systems will: 1) obtain drinking water and source water data relevant to public health protection through appropriate means from the regulated community; 2) support measurement of program progress and decisions affecting compliance of the regulated community as well as program management and direction, including development of standards and regulation review; and 3) provide reliable information to the public.

The series of presentations and stakeholder discussions at the meeting followed closely the structure of the Options paper prepared and distributed in advance by EPA: *Options for the Office of Ground Water and Drinking Water Information Strategy (Working Draft)* (see Attachment C). The topic areas included:

- Defining Data Needs and Uses
- Reporting
- Improving System Performance
- Improving Data Quality
- Data Access and Utilization
- System Economics
- Consideration of Alternate Visions of Future Information Management

EPA emphasized the importance of stakeholder involvement throughout the information strategy development process, especially to assist EPA to identify roles and business processes that rely on water quality data and enhance stakeholder access to data.

A. Comments and Issues Raised by Stakeholders

The comments and issues raised by participants fell into several themes, sometimes but not necessarily specific to a particular topic area. These themes and discussion highlights are summarized below.

1. Need for EPA to Define Business Needs for the Drinking Water and Source Water Data

A persistent theme emphasized throughout the meeting by participants was the need for EPA to focus its information strategy first and foremost on collecting and managing those data needed to support the agency's core business needs, rather than simply "counting widgets" because you can. Clear identification of these core business needs must be the first step. Further, it was suggested that to do this, it is critical to define and clarify the questions which the data is needed to answer to thoroughly define the information needs.

EPA responded to this concern by describing the fundamental information needs that they have defined. These needs are primarily associated with 1) meeting statutory requirements, and 2) assessing results of Agency actions. Among the agency's specific business needs for the information are to:

- Provide oversight and backstopping for delegated PWSS programs (compliance data especially);
- Supporting the six year review of existing drinking water regulations and other ancillary needs;
- Identify emerging contaminants/ contaminants;
- Develop new regulations;
- Ensure the public health protection of sensitive subpopulations;
- Measure the effectiveness of source water protection programs and identify new approaches and methods for source water protection;
- Inform and make information available to the public.

In considering this list, participants urged EPA to consider for which of the identified needs it is necessary to require all systems to collect and report data (e.g. violations/compliance), and for which it would be sufficient to have representative sampling of some kind (e.g. source water protection).

In determining data needs, participants urged EPA to consider what analyses will be done and how they will be done to fully inform decisions about what data to ask for.

Participants noted that there is likely to be overlap between state needs for data and those of EPA. So, it seems probable that the value of gathering and maintaining certain information would be leveraged due to its usefulness to both groups. Further, it is quite possible that some of this information is already being required by states and so, while making it available to EPA would entail some additional reporting efforts by states, it may not necessarily place additional monitoring requirements on PWSs.

EPA noted that – as part of this exercise – there is an attempt to understand and define the needs that other information stakeholders have for this data. States voiced the concern that, while it is appropriate for EPA to appreciate where common needs exist, EPA should leave states' definition of their own data needs to the states and not interfere with this process or state's collection and management of their required data. States reminded EPA that as primacy agents under the PWSS program, specified state regulatory agencies have discretion to require reporting of additional data elements by PWSs. For example, states may have set different standards in their programs that are more stringent than the federal standards. Consequently, their data needs may go beyond collecting violation data based on the MCL and may be more stringent than those of interest to EPA.

In response to suggestions for seeking opportunities to integrate and/or coordinate Clean Water Act (CWA) and Safe Drinking Water Act (SDWA) information needs, state participants expressed discomfort with using drinking water data for CWA purposes. EPA explained that it plans to look into the extent to which CWA and SDWA information needs are mutually complementary, including considering the potential use of CWA information in forming its characterization of a national water program information strategy. Participants called for increased dialogue between EPA staff that work

on SDWA issues and those that support the agency's work related to the CWA. It was further suggested that linking waste water and drinking water data systems is another potential approach to expanding the available information set for use in characterizing the national water program.

8. Increased Reporting Burden and Resistance to New Information Requirements

While acknowledging EPA's genuine need for some the data currently collected, and for some additional data items. State representatives expressed significant concern over the prospect of increased data collection and reporting burden placed on states by EPA.

In response to questions raised by participants about whether the new information strategy might eliminate some of the existing information requirements rather than just add new ones, EPA representatives stated that the agency is prepared to consider dropping any current data requirements that do not contribute to meeting the information needs that are defined and articulated by the new strategy.

States pointed out that a shift by EPA to new information systems, such as SDWIS-Plus, could place a large burden on some states, particularly those that have developed their own unique information systems. They cautioned that in the planning stages, EPA should take steps to consider the burden on states associated with the introduction of any modifications to EPA information systems. These considerations should then be incorporated into the decision of whether the new or modified systems are necessary and, if so, how they should be structured and implemented.

States pointed out some specific dimensions of the added burden that should not be neglected, including the need to clarify who is responsible for entering data into the EPA information systems and to consider the ease of the method for providing and transmitting the data to EPA.
In addition, it was noted that, in some states, modification to the PWS reporting requirements requires changes to legislative statutes. This process, which can be time intensive and difficult, may take up to two years to complete. States noted their strong preference minimizing the need to seek such changes.

Acknowledging the discomfort of states with the potential for new information requirements, EPA asked for clarification from states regarding whether the potential burden is the key concern or if there is reluctance on the part of states to share certain data with EPA. States responded that the answer is somewhat complicated. State representatives at the meeting responded by emphasizing that their resistance is not a function of not wanting the EPA or anyone else to have their data. The potential added burden is the greatest concern, but is also coupled with real concerns regarding how the supplied data may be used or interpreted by EPA or the public.

State representatives noted their chief concern that data collected for one reason might be inappropriately used for other purposes. In fact, it was felt that secondary users of data are almost certain to use data for purposes it was not originally intended. There may be associated concerns about whether the quality control standards used in collecting the data support the alternative purposes

for which the data are used. Further, important metadata may become separated from the primary data to which it is related, compromising the value of primary data or providing a misleading impression when it is taken out of context. It was noted that systems like ECOFACTS, which search multiple databases to supply all available media-specific data within a specified geographic area, may provide deceptive information because the appropriate caveats and contexts are not adequately provided or impressed upon the user. States were wary that EPA or the public might use such data to unfairly second guess state PWSS programs.

A participant noted that in SDWIS/FED, if a sample is missed, the PWS is required to report a violation for all 37 chemicals monitored. This is burdensome to counties that must enter the violation data.

Some states voiced concerns related to the flow of information to EPA. It was suggested by some state participants that EPA could collect selected data directly from PWSs or laboratories as a way of minimizing added burden on the state. However, others indicated that because states have both primacy and regulatory authority, EPA should acquire all data directly from the states primary agency and not circumvent them by collecting data from labs or PWSs.

Finally, with regard to the tension between the federal and state agencies over information requirements, it was noted that in some cases requests for more information are perceived as a display of a lack of trust or a threat to states, and that the new information will be used for increased enforcement and compliance activities. It was suggested that this is a serious communication problem that might be alleviated by entering into some kind of performance partnership agreements.

9. Data Quality

Participants raised concerns that the quality of data submitted to EPA information systems might be uneven, in part related to the excessive burden on the states. Representatives from PWSs and states noted that they would need convenient access to data from their utilities and jurisdictions, respectively, to be able to correct data posted to EPA information systems – preferably via the internet – in a timely manner. They also noted the need for timely notification of potentially problematic records in order to feel more comfortable with quality control and thoroughness. It was suggested that off-the-shelf computer applications are now available to do this.

10. Issues Related to Specific Data Needs

Participants had much to say about the need for data that provides the ability to tie sample data to locational/geographic information. There was mixed perspective on this topic. The ability to recognize potential relationships between multiple data points and sources was cited as an important capability for many participants. However, several significant challenges to accomplishing this goal were considered.

Although accurate geospatial data (e.g., latitude, longitude, and depth) is needed, this complex and potentially expensive-to-gather data is not universally or consistently collected at present. Simply reporting zip codes will not work because there may be multiple sources and PWSs within a zip code. Conversely, a source or PWS may span several zip codes.

Combining underground injection control (UIC), source water protection, and PWSS data may be possible with the use of GIS. However, many state programs with primacy responsibilities do not collect UIC or source water data, leaving these responsibilities to sister agencies with which there is limited coordination, at best. Additional coordination would be required to ensure the collection of consistent and comparable geospatial data. Further, because collection of source water protection data is voluntary, states may be reluctant to take on this additional task – including the collection of the associated locational data – without dropping other data collection tasks that they already perform. An additional related challenge is that, if the states choose not to collect this data, it is unclear who will.

Participants agreed that rather than building new databases to accept certain parametric data and other metadata, the EPA information systems should contain placeholders so that they are able to accept these data elements. EPA noted that it has not yet determined whether reporting of these data elements will be voluntary or compulsory, or part of the regulatory reporting process.

Finally, it was suggested that there may be data elements that are only needed for some limited period of time (i.e. information related to the effectiveness of a particular treatment technology). This should be acknowledged and the data should not be requested past the time of its usefulness.

11. Information System Quality

Many participants noted concern that any future EPA information system should be designed and maintained such that it can perform at improved levels over and with greater reliability than the current SDWIS/STATE system. The Pivot Tables presented by EPA were thought to be a good stand-alone tool for use as a substitute to direct connection to the EPA databases. Although the pivot tables are static snapshots of the data, EPA offered to work with states to refresh the tables as frequently as needed and practical.

Participants were supportive of EPA's move toward modifying the drinking water databases to be web-based (e.g., in XML format), which was anticipated to make access easier and more efficient.

While states advocated for more frequent updating of SDWIS/STATE over SDWIS/FED, they advised against major investments in modifications to SDWIS/FED in light of the plan for developing a replacement system. States also indicated that they do not wish to submit data to multiple systems. Though in the interim to accommodate reporting of data as a result of new rules, it was suggested that states provide the new rule data in spreadsheet format based on a template developed by EPA. EPA might then use these spreadsheets to feed data into new modules that can link to the new system under

development. The new system might be created from these modules, which could also be used as the vehicle to transfer data from the old system.

12. Access and Ease of Use for the Full Range of Users

In addition to the comments made by state representatives noting concern that systems should allow them convenient access, input, and error correction, representatives of other stakeholder groups, particularly those from public interest groups and industry, expressed their hope that the databases be easy to use (even for the new user), current, and consistently available on demand. They agreed that making these systems web-based was desirable from the perspective of broad distribution and on-demand availability.

A state representative observed that the nature of the queries received in recent years had changed. Consumers are no longer the primary inquirants about water data. Businesses and banks now routinely call for flow and hardness data and other information. The needs of these groups should be considered in the design of the systems and the planning of their content.

Participants also noted that packaged reports could also be made available to suit the varying needs of the different levels of users. To meet the needs of some users, it may be necessary to make some of these reports available in a printed format.

Participants suggested the following strategies with respect to facilitating accessibility of water information to persons with disabilities:

- Provide optional formats that accommodate large monitors;
- Avoid the use of frames on Web pages;
- Avoid using certain colors (e.g., red); and
- Minimize the use of Java applets, which may remain on the user's system after they have exited the Web site.

EPA was also advised to consult with other federal agencies to learn what actions they have taken, taking note of the successes and failures.

5. Communication and Integration Among Internal Stakeholders

EPA staff in a variety of offices and regions has different responsibilities with respect to drinking and source water research, policy making, implementation, and enforcement. Consequently, within EPA there are different perspectives on the needs that could be served by a revised information strategy.

Participants agreed that greater interaction should occur between data and technology managers (in OEI and OW) and policy staff, both within and external to EPA (e.g., in discussions with ASDWA, AWWA, etc.). Such discussions could yield benefits to the management of water quality and the

protection of public health. They acknowledged these specialists often find it difficult to collaborate with one another.

It was also pointed out that data management staff is commonly brought in after critical policy discussions have taken place. This may result in directions that are difficult to implement or inconsistent with the intent of the policy decisions. Improved communications between these groups is expected to emphasize to all involved that policy and management issues are closely related.

C. Alternate Visions of Future Information Management

Toward the end of the meeting, Chuck Job (EPA Team Leader for this effort) shared the OGWDW approach to several alternate visions of future information management. He emphasized that the different potential approaches share a common set of principles derived from the EPA Office of Water ISP Performance Assessment. These principles include

A. Common functions should share information business systems
B. Replicate storage of data should be minimized
C. Common data element definitions will enhance data sharing and comparability
D. Data should be stored in databases and retrieved and analyzed using separate state-of-the-art analytical software
E. Data should be easily accessible for analysis

Mr. Job briefly described four potential visions (see the EPA Options Paper – Attachment C – for full descriptions):

1. an extension of the existing Safe Drinking Water Access and Retrieval System (SDWARS) for unregulated contaminants.
2. the "post and exchange" or "come and get it" approach used by the Environmental Council of the States (ECOS)
3. an approach based on SDWIS/STATE
4. an approach based on SDWIS/FED

In response, participants emphasized several points:

- The missing piece in all of these approaches is the world wide web – a combination of the web and XML is a good idea regardless of which model is used as a base
- Whichever is used, the design should be for future implementability, not just today's
- More than one of these may need to be combined to address the range of different needs.
- Comments regarding Option 1: It may be good for UCMR and special studies, but raises concerns about compliance and violations data not going through states. A mechanism would be needed to ensure state access and review of their data before is can be used by others for various purposes.

- Comments regarding Option 3: This approach is guiding EPA Office of Environmental Information at a macro scale. Some states are already geared towards this approach. Key issues are timeliness and accessibility for QA/QC. Some cautioned that this approach could set up a competition between EPA and the states. A strength of this approach is that it reflects the underlying institutional and legal structure that the whole system serves (e.g. labs are accountable to PWS that hires them; PWSs are accountable to their state; states are accountable to EPA). However, a potential problem might be bottlenecks at the state level. Also, it is important to keep in mind that ECOS is pollution-prevention oriented, and drinking water needs may be different.

Several participants encouraged EPA to thoroughly explore opportunities in the commercial market place to help address this effort.

D. Next Steps

Chuck Job, OGWDW, thanked participants for their valuable feedback at this meeting and highlighted the following next steps; a comprehensive time line and list of next steps can be found on pages 27 and 28 of the EPA Draft Background Document (Attachment C):

- OGWDW will continue to work with stakeholders both internal and external to EPA to identify opportunities for consolidating some of the reporting requirements – in the six months (approximately) following the meeting.
- Concurrently, the Protection Branch will work to define business measures for source water and UIC and their associated information requirements.
- OGWDW will work with OW and OEI to integrate systems to reduce costs, improve data sharing, and facilitate the process by which states report data.
- Work to integrate agency data standards – six of which are currently available and an additional four are under development.
- Web-enable SDWIS/STATE.
- Complete revision of the ISP following completion of information requirements process –Summer 2001.
- Launch modernization of and implement the ISP – beginning in approximately three years.

Mr. Job concluded by reiterating that this meeting initiated a phase of the information strategy planning process and that stakeholders should feel free to continue communicating with OGWDW on these issues; additional comments are welcomed.

ATTACHMENTS

A. Meeting Agenda

B. List of Participants

C. EPA Draft Background Document, *Options for the Office of Ground Water and Drinking Water Information Strategy (Working Draft)*, U.S. EPA Office of Water, February 2001, EPA 816-P-01-001.[2]

D. ASDWA/EPA Data Management Steering Committee Discussion Papers[3]:

- *Guiding Principles for Information Requirements for Rule and Policy Development*, March 5, 2001,
- *SDWIS/FED Data Quality*, March 5, 2001.

C. EPA/ECOS fact sheet, *A Blueprint for the National Environmental Information Network*, January 2001.[4]

D. Presentation Materials from the Information Strategy Stakeholder Meeting[3]

E. Transcribed Facilitators' Flip Chart Notes

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[2] At the time of the meeting, this document was available for download from the OGWDW drinking water data and databases web page, at URL http://www.epa.gov/safewater/databases.html.

[3] Copies of these materials are available on request from Mr. Jeff Bryan, U.S. EPA - OGWDW, 1200 Pennsylvania Ave., NW (4606), Washington, DC 20460; Ph: 202/260-4934; Fax: 202/401-3041; E-mail: bryan.jeffrey@epa.gov.

[4] At the time of the meeting, this document was available for download from the ECOS web page, at URL http://www.sso.org/ecos/eie/network-blueprint.pdf.